



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,632	04/14/2004	Steven T. Fink	071469-0309183	4628

909 7590 11/03/2006

PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT PAPER NUMBER

1763

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,632

Applicant(s)

FINK, STEVEN T.

Examiner

Jeffrie R. Lund

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 31-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-6, 9-12, 16, 18, 19, and 22-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson, WO 99/53120.

Johnson teaches a plasma reactor that includes: a vacuum chamber; a chuck assembly 14 disposed in the vacuum chamber for holding a wafer 15; an ICP plasma source 28 positioned above the chuck assembly; a side wall supporting a turbo molecular pump 26 positioned below the plasma source; holding structure (chuck mount ring 16 and upper walls in figure 1); at least one utility via assembly extending (bellows 13) vertically between the chuck assembly to the chuck mount ring of the holding assembly, which suspends the chuck assembly under the plasma source; matching networks 20, 22 for the plasma source and chuck held by the holding structure; electric insulators to insulate the chuck and plasma source; and a gas supply system 21, opposite the chuck and supported by the holding structure. (Page 1 line 9 through page 2 line 25, figure 1)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1763

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 7, 8, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, WO 99/53120.

Figure 1 of Johnson was discussed above.

Figure 1 of Johnson differs from the present invention in that Figure 1 of Johnson does not teach a CCP plasma source; an ESFR plasma source; a transfer chamber with a valve and a robot to transfer the wafers to and from the chuck.

Johnson teaches in figures 5 and 15 a plasma reactor that includes a CCP plasma source 314 (figure 15); an ESFR plasma source 38 (figure 5); and a transfer chamber 41 with bellows (valve) 39 (figures 5, and 15).

The Examiner takes official notice that transfer chambers have a robot to transfer the wafers to and from the chuck.

The motivation for replacing the plasma source of Figure 1 of Johnson with the CCP or ESFR plasma source of Figures 5 and 15 of Johnson is to provide an alternate plasma source.

The motivation for adding a transfer chamber with a valve to the apparatus of Figure 1 of Johnson is to provide a means of transferring the wafer to and from the chuck.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the plasma source of Figure 1 of Johnson with the plasma source of figure 5 or 15; and add a transfer chamber to the apparatus of Figure

Art Unit: 1763

1 of Johnson.

5. Claims 13-15, 17, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson, WO 99/53120, in view of Rice et al, US Patent 6,095,083.

Johnson was discussed above.

Johnson differs from the present invention in that Johnson does not teach supplying utilities to the chuck, the type of insulators, or a pivot.

Rice et al teaches a processing chamber including a chuck 54 that is supplied with utilities including a bias power source and a temperature regulating system, using TEFLON™ as an insulator, and a pivot 4004. (Entire document, specifically, Figures 26, 27, and 32.

The motivation for supplying utilities to the apparatus of Johnson is to enable the chuck of Johnson to bias, heat, and cool the chuck of Johnson as taught by Rice et al.

The motivation for making the insulator of Johnson out of TEFLON™ is to provide a material of construction.

The motivation for adding a pivot to the apparatus of Johnson is to enable the chamber to be easily opened as taught by Rice et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to supply utilities, make the insulators out of TEFLON™, and add a pivot as taught by Rice et al.

Response to Arguments

6. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

In regard to the argument that:

In contrast to the present invention, Johnson describes a reduced impedance chamber that includes a turbomolecular pump 46 disposed above a plasma source 36 and a chuck assembly. (Johnson at Figs. 5 and 15, for example.) There is no discussion of a holding structure or a utility via assembly extending vertically between the chuck assembly and the holding structure to connect the chuck assembly to the holding structure, thereby suspending the chuck assembly below the plasma source assembly in the vacuum chamber. As a result, Johnson does not describe at least two of the features recited by claims 1-30. Accordingly, Johnson cannot be relied upon to anticipate any of claims 1-30.

Johnson also fails to assist the Examiner with rendering any of claims 1-30 obvious. In particular, given that Johnson describes and illustrates a construction for a reduced impedance chamber that includes a turbomolecular pump 46 disposed above a plasma source 36 and a chuck assembly, those skilled in the art would not look to Johnson for any teaching associated with the subject matter of the present claims.

The rejection has been changed, so that the 102 and 103 rejections are based on Figure 1 of Johnson, and Figures 5-17 are used only to teach different types of plasma sources and a transfer chamber. The above arguments are directed to the embodiments disclosed in Figures 5-17 and are therefore moot.

The Examiner notes that "suspending" has multiple definitions. One definition is to hang from, and a second is to support or keep from falling. The phrase "thereby suspending said chuck assembly below said plasma source" does not limit the claim to the idea that the chuck is hung from the holding structure below the plasma source. It is broad enough to read on a chuck supported from below as in Johnson. If the Applicant desires to claim that the chuck is hung or suspended from the holding structure, it needs to be positively claimed.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

Art Unit: 1763

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

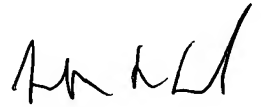
Art Unit: 1763

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
10/30/06